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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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Salt Lake City, Utah 84180-1203
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May 30, 1991

Mr. Dwight Crossland
Western States Minerals Corp.
84 Glen Carron Circle
Sparks, Nevada 89431

Dear Mr. Crossland:

Re: Revegetation and Topsoil Deficiency at Drum Mine, M/027/007, Millard County, Utah

Discussions concerning test plot establishment and soil sampling were initiated with Mr. Richard McNeely of Western States Minerals Corp. (WSMC) in September of 1989. Those discussions resulted from the determination that a 54,200 cubic yard topsoil deficiency existed at the Drum mine and that WSMC would be responsible for alleviating the deficiency. WSMC was asked to establish revegetation test plots at the Drum site after performing soils analyses of materials found on site.

Mr. Frank Filas of WSMC performed the analyses in April of 1990 (please see attached analyses). The analyses were forwarded to the Division for our evaluation and recommendation. The following observations and requirements are based on my evaluation of the lab analyses:

1. The analyses obtained by Mr. Filas suggests that direct revegetation attempts on existing leach pads and dumps, without first topsoiling, would be futile. These materials are very saline and sodic, making it difficult for plant establishment. However, some of the waste dump material may be suitable as indicated by the analyses performed on area #7.

2. Areas/samples identified by Mr. Filas as 1, 2, 3, 4 and 7 cannot be used as soil substitutes. The salts found in these soils will not support an acceptable plant cover.

3. Areas/samples identified by Mr. Filas as 5, 6, and 8 can be used as substitute material. Areas 5, and 6 are borrow areas and area 8 is a waste dump area.

The analyses indicate that a revegetation test plot program on the leached heaps and some of the waste dumps would prove unsuccessful, because of the very poor nature of the material to be used as a plant growing medium. These areas must be topsoiled with an acceptable material. We will require that WSMC go ahead with a plan that would involve topsoiling of those areas identified as having poor soil qualities either chemically poor or physically poor (very coarse texture). Such a plan would involve the identification of borrow areas. Waste dumps that have been identified as having acceptable soil qualities can be reclaimed without the addition of topsoil.

The Division suggests performing a more extensive soil analyses on those areas slated as borrow areas to ensure that poor quality soil is not used. Area #4 on Mr. Filas' list was a borrow location and some of the poorest quality material evaluated on site.

Please contact us by June 30, 1991, concerning the development of the revegetation/topsoil redistribution plan. The process of expediting this plan would be served best by establishing a meeting date to discuss the plan with Division staff.

Sincerely,

Holland Shepherd
Senior Reclamation Specialist

jb
Attachment
cc: Al Cerney, WSMC
Ed King, Jumbo Mining
Wayne Hedberg, DOGM
M027007.1

Frank Filas
Western States Minerals
4975 VanGordon Street
Wheat Ridge, CO 80033

CSU Soil Testing Lab
Room 6, Voc. Ed. Bldg.
Fort Collins, CO 80523
303-491-5061

NOTE: Your samples will be automatically discarded 30 days from the date on this report unless you notify the lab to keep the samples. Thank you.

Date Rec:2/22/90

Date:4/4/90

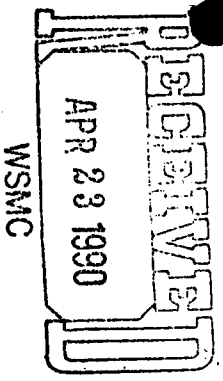
Billing: S09251

Research Analysis

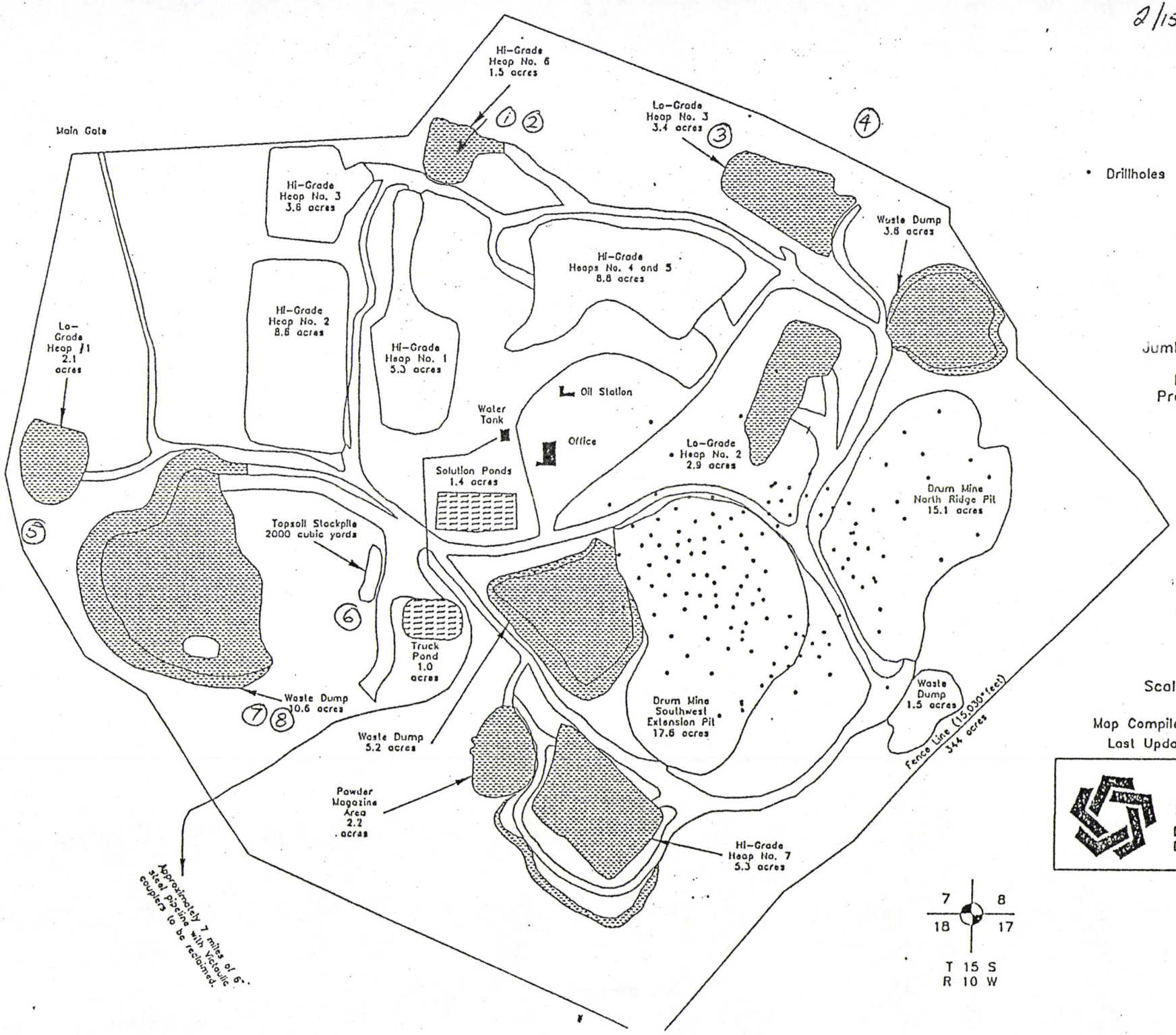
Lab #	Sample ID #	Paste pH	Paste E.C. mmhos/cm	---meq/l from sat.ext.--- Ca	Mg	Na	K	SAR	% Sat	--AB-DTPA-- NO3-N ----ppm----	P	CEC meq/100g
*R6945	1* H	6.6	26.8	29.9	36.3	249.6	1.2	43.4	30	52	2.5	6.0
* 6946	2 H	7.2	24.1	36.1	32.7	220.4	1.0	37.6	24	19	2.3	4.1
* 6947	3 H	9.1	58.4	2.6	2.3	795.7	1.8	505.6	32	180	4.7	6.4
* 6948	4-B	7.4	69.9	181.1	132.4	634.8	0.4	50.7	30	7	2.3	14.7
ok-6949	5-B	8.3	1.3	1.3	0.2	11.8	0.1	13.4	23	8	5.0	20.1
ok-6950	6-B	8.6	1.3	1.1	0.1	12.3	0.1	15.7	26	2	3.4	16.4
* 6951	7-WP	7.4	28.9	75.3	63.6	179.1	0.3	21.5	39	55	3.1	9.6
ok-6952	8-WP	7.4	13.4	71.4	25.4	73.9	0.3	10.6	37	26	3.1	8.5

Lab #	Sample ID #	% Sand	% Silt	% Clay	Texture	% CaCO3 equiv	% Total S	Acid-Base Potential
R6945	1	58	24	18	SL	1.3	0.31	3.3
6946	2	67	20	13	SL	0.7	0.25	-0.8
6947	3	40	43	17	L	3.8	0.38	26.1
6948	4	48	26	26	SCL	24.1	0.15	236.3
6949	5	82	8	10	LS	7.2	<0.01	72.0
6950	6	78	8	14	SL	4.4	<0.01	44.0
6951	7	42	25	33	CL	6.5	0.81	39.7
6952	8	44	26	30	CL	6.4	0.74	40.9

* See attached list for sample ID's



2/15/90



• Drillholes

Jumbo Mining Company
M/027/007
Drum Mine Site
Present Disturban

Scale: 1" = 600'

Map Compiled December 5, 19
Last Update: July 26, 19

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